CSN CONSEJO DE SEGURIDAD NUCLEAR
www.csn.es

ENSREG Post-Fukushima National Action Plans Workshop

Brussels, April 2015

1 | Post-Fukushima NATIONAL ACTION PLAN. SPAIN. 2014 UPDATE.

Manuel Rodríguez. Subdirector Nuclear Installations. **CSN**

OUTLINE

- Issues identified in the rapporteur's report from the 2013 workshop.
- Progress on implementation and update of the NAcP.
- Main changes in the NAcP since the 2013 workshop
- Relevant outcomes since the 2013 workshop.
- Good practices and challenges identified during implementation so far.
- Other relevant aspects associated with implementation of the NAcP.
  Implementation of WENRA new Reference Levels.
- Questions/comments on the 2014 version of NAcP.

3 FORMAT OF UPDATED NAcP REPORT

- No new format developed for updated NAcP. Index and content maintained.
- Updated NAcP is a revision of the former.
- Emphasis placed on highlighting changes.
- New Chapter 4: "Relevant aspects of the revised NAcP".
- Follow up tables in annexes incorporate a new column: Current status.

4 ISSUES IDENTIFIED IN THE RAPPORTEUR'S REPORT FROM THE 2013 WORKSHOP

Two issues were mentioned in the Rapporteurs' report for Spain:

- *Ambitious timeframe for implementation of measures (completion by the end of 2016). Nevertheless, some measures scheduled for the long term are crucial, such as filtered venting and the installation of PARs.*

  CSN is closely monitoring the implementation of the measures and at present time only occasional, and in all cases duly justified, deviations from the deadlines established are expected.

- *Appropriate and timely implementation, in its regulation and practices, of the outcomes of the WENRA on-going Review of the harmonisation of the reference levels in the field of external hazards is considered a challenge for Spain.*

  The CSN is currently analysing the contents of the new WENRA reference levels and will issue a suitable plan in the near future for their implementation in the national legal system.

5 PROGRESS ON IMPLEMENTATION AND UPDATE OF THE NAcP

- Attachments 1, 2 and 3 to NAcP contain a table with detailed summary of the degree of compliance achieved to date for every measures in the Spanish plan.

- It may be stated that no significant aspects are appreciated that might have an impact on the basic objectives of the Plan.

- The following relevant aspects have now been completed:

  - Early in 2014 new Emergency Support Centre (ESC) was completed. ESC is capable of supplying trained personnel and equipment to any Spanish NPP in less than 24 hours.

  - Availability at all the nuclear sites of mobile equipment (pumps, electrical generators, etc.) allowing for quick connection to the fixed systems of the plants.

  - Verification and reinforcement of the seismic strength of equipment of importance for accident management to a "seismic margin" of 0.3 g (PGA).

MAIN CHANGES IN THE NAcP SINCE THE 2013 WORKSHOP

- No major modifications to NAcP have been carried out.
- No relevant additional measures have been included.
- The measures foreseen have not been eliminated or significantly modified.
- Main changes introduced in overall scheduling:
  - Implementation of the filtered containment venting systems will be carried out during the 2016 and 2017 refuelling outages. BWR plants will also incorporate this improvement, although they were already fitted with a *hard* vent.
  - The revision and acceptance by the CSN of the analyses of dam rupture scenarios have experienced some delay due to the existing uncertainties, these having emerged during the review being performed by the CSN.
  - The regulatory requirement (Technical Instruction Complementary to operating permit, **ITC**) anticipated within the framework of the updating of seismic hazards, foreseen for issue in 2013, will be issued during the first half of 2015.

RELEVANT OUTCOMES SINCE THE 2013 WORKSHOP 1/2

- Analysis completed with improvements at the plants.
  - Internal flooding due to the rupturing of non Seismic Class piping
  - Water containers rupturing with major fluid releases
  - Site access capacity studies
  - Consequences of the containment flooding strategy for instruments
  - Control Room habitability improvements
  - Human resources of the emergency response organisation. Licensees have eventually developed specific methodologies following the experience in the USA.

- Analysis completed without improvements
  - Possible combinations of credible extreme meteorological events
  - Extreme temperatures on site [minor improvements to protect equipment against extremely low temperatures (freezing) in some plants]

RELEVANT OUTCOMES SINCE THE 2013 WORKSHOP 2/2

- Analysis still on going:

  - Dam rupture scenarios. Uncertainties from comparison of dam break criteria applied in the analyses carried out by the licensees and criteria applied in the 'Dam Emergency Plan'. Size and duration of the dam break.

  - Potential risk due to H_2 in buildings annexed to containment. The licensees have carried out the studies requested, these currently being in the phase of evaluation by the CSN. No specific improvements proposed. Containment Filtered Venting and H_2 Recombiner systems considered in the analysis with positive impact on the results.

  - Possible improvements to be implemented for severe accidents arising during shutdown. Difficulties found due to the scarcity of international experience. Currently completed by licensees for some plants. Improvements expected (Procedures, new/change).

  - I&C survival in Severe Accident Environments. Difficulties found due to the scarcity of international experience. Analysis completed for all but one plant. Improvements: I&C equipment changes in one plant.

9

GOOD PRACTICES IDENTIFIED DURING IMPLEMENTATION SO FAR

Identified by both CSN and licensees.

- Adequate implementation of protocols, including periodic testing, for the quick and preferential recovery of off-site electrical supply from hydro Power Plants.
- Procedures and tests for the reliable shedding of non-essential Direct Current loads.
- Procedures and tests to allow for the remote manual use of relevant equipment in the event of loss of direct current power.
- Implementation of the new Emergency Support Centre (ESC) at national level.
- Implementation of the Alternative Emergency Management Centre (AEMC), the Passive Autocatalytic Recombiners (PAR) and the Containment Filtered Venting System at all the NPPs.
- Improvement of the capacity to handle large amounts of contaminated liquids.
- Development of Radiation Protection Guidelines complementary to the SAMG.

10

CHALLENGES IDENTIFIED DURING IMPLEMENTATION SO FAR

Identified by both CSN and licensees

- There are no reference standards for the design and implementation of this type of improvements. The CSN has approved a set of assessment criteria. In specific cases, engineering judgement applied.

- Emergency Response Organisation (ORE) capabilities analysis methodology: this was a novelty issue; the CSN has requested the licensees to develop their own methodology, which was finally based on that developed in the USA by NEI.

- The performance of special tests, e.g. the testing at Westinghouse PWR plants of the local manual operation (with loss of Direct Current power) of the steam generators relief valves and the auxiliary feedwater turbine-driven pumps.

- Improvements conditioned by the work performed at international level, e.g. the drawing up of guidelines on severe accidents in shutdown conditions, or the implementation of new main pump seals at Westinghouse PWR plants.

11 OTHER RELEVANT ASPECTS ASSOCIATED WITH IMPLEMENTATION OF THE NAcP 1/2

- New CSN ITCs to gather requirements still to be completed by the licensees.

- Santa Maria de Garoña NPP situation. Application for operating permit renewal. ITC requesting complete NAcP measures before restart up.

- Relevant actions related to the potential loss of large areas of a nuclear power plant (events that might be induced by malicious acts).

  - Redistribution of the spent fuel stored in the pool.
  - Measures for management of large amounts of radioactive contaminated water.

12 OTHER RELEVANT ASPECTS ASSOCIATED WITH IMPLEMENTATION OF THE NAcP 2/2

- Relevant actions relating to emergency preparedness, emergency response and post-accident management off site.
  - Military Emergency Response Unit incorporated as emergency response organization.
  - Work plan for revision of National Basic Plan for Nuclear Emergency Management.
  - CSN plan for the renewal in 2018 of the network of automatic stations (REA) and the incorporation of new mobile units.
  - Emergency communications improvement. Decision made to incorporate a new satellite-based voice communications network, this already being operative.

- New WENRA reference levels approved 2014 to be integrated and harmonised with national regulatory system before 2017 according to WENRA proposed schedule. Approaches and criteria similar to those followed for previous Reference Levels.

13

QUESTIONS/COMMENTS RAISED ON THE 2014 VERSION OF NAcP

Country	Questions to Spain's NAcP
Bulgaria	3
Slovenia	2
France	4
Nederlands	7
Hungary	2
TOTAL	18

Organization	Questions to Spain's NAcP
Greenpeace	25 (4 generic)
Mr. Wolfgang Renneberg	2 (generic)

TOPICS IN QUESTIONS/COMMENTS RAISED ON THE 2014 VERSION OF NAcP

- Containment filtered venting system (alternative, deadline).
- Re-analysis of seismic hazard.
- Analyses of dam rupture scenarios.
- Equipment reinforcement for seismic loads.
- H_2 in buildings next to reactor building.
- Guidelines for severe accident starting in plant shutdown conditions.
- Analysis of suitability of human resources assigned to the emergency response organization.

END OF PRESENTATION

Thank You.